Introduction to the special issue “Experiments on conflicts and conflict resolution”

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Abstract. This special issue brings together a series of eight articles dealing with experiments on conflict and conflict resolution. The papers presented here originate from a workshop on experiments on conflict held in Rennes, France, in May 2012. The aim of the special issue is threefold: (i) investigating the main determinants of conflicts, (ii) measuring the consequences of conflicts in terms of social welfare losses, and (iii) presenting and discussing different mechanisms and institutions as well as their limitations to reduce and/or prevent conflicts. All papers included here – whether they address interpersonal, intra group or inter groups conflicts – share the same methodology, namely experimental economics.

Keywords: Conflict, Conflict Resolution, Experiments, Conflict of interest, Social Welfare

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1. General presentation

Conflicts are frequent in the real world, ranging from interpersonal conflicts such as domestic violence to inter group conflicts like civil conflicts. There are probably as many definitions of conflict as there are occasions for its occurrence. According to some authors, conflicts would occur when individuals (or groups) have divergent interests in such a way that they could be negatively affected by another individual (group) (Thomas 1992). Other authors define conflicts as "a battle or clash" involving individuals or groups in opposition to each other.

This special issue presents a series of eight articles dealing with experiments on conflict and conflict resolution. The genesis of this special issue is the workshop on experiments on conflict held in Rennes, France, in May 2012. Some papers in this issue were presented during the workshop. Others were selected from the submissions in response to a call for papers. All papers of this special issue – whether they address interpersonal, intra group or inter group conflicts – share the same methodology, namely experimental economics. The aim of this special issue is threefold. First, the determinants of conflicts are investigated; second, the consequences of conflicts in term of social welfare losses are measured, and finally, attempts are made to assess the efficiency of different mechanisms in reducing and/or preventing conflicts.

The rest of this introductory paper is organized as follows. Section 2 discusses the determinants of conflicts. Section 3 investigates the collective costs of conflicts while Section 4 deals with conflict resolution. Section 5 briefly summarizes each paper presented in this special issue. Finally, Section 6 discusses the main findings and concludes.

2. The determinants of conflicts

There exist several sources of conflicts. A first source of conflicts is greed (Collier and Hoeffler 2004; Fisher 2000). The "greed" explanation relies on the idea that, in a context of relative scarcity of resources, individuals (or groups) would act in pursuit of self-interested material gain. In other words, the greed explanation of conflict reflects competition over valuable (natural) resource rents (lands, primary commodities, etc). There are numerous examples of such situations where individuals or groups compete for scarce resources ranging from electoral competition, promotion tournaments within firms, research contests where teams of researchers compete for being the first unit to innovate, to full wars between countries to get access to natural resources or land (Abbink et al. 2010). If greed can explain interpersonal or inter group conflicts, it may be also at the heart of social dilemmas that characterize several intra group conflicts. Social dilemmas have been formulated in mathematical terms by game theory to reflect both the existence of conflict of interest as well as the tension arising between individual and collective interests. In social dilemmas individuals may rationally choose to defect because of greed, i.e. the desire to get the highest possible outcome for oneself, which is socially suboptimal.[3] The two-person prisoner's dilemma is a good illustration of such conflict of interest where the dominant strategy is to

[3] Another potential reason for defection is the fear of being a sucker, i.e., cooperating while the other party will defect.

defect while it would be socially optimal that both parties cooperate. Another example of social dilemma is the public good dilemma. A public good is a resource from which all may benefit, regardless of whether or not they have provided the good (public goods are non-excludable). Another characteristic of public goods is that they are non-rival such that one person's use of the good does not diminish its availability to another person. Driven by greed, individuals may be rationally incited to free ride i.e. to enjoy the public good without contributing to its provision, which is also socially suboptimal. Several experiments have tested the predictions in either game and have confirmed that individual decisions converge toward the Nash equilibrium over time (see, for instance, Isaac et al. 1985, Isaac and Walker 1988, Keser 1996, for experiments on public good games).

A second source of conflicts is grievance (Gurr 2000, Collier and Hoeffler 2004, Cramer, 2005). Central to grievance is the concept of (horizontal) inequalities – either in terms of land or income. While the idea of a relationship between inequality and conflict is appealing, the empirical evidence is however not clear-cut. Indeed some studies have found positive relationships between income inequality and political violence (Binswanger et al. 1993, Schock 1996) while others have observed no relationship (Weede 1981, Collier et al. 2004). This absence of clear empirical evidence of a relationship between inequality and conflict may be due to the fact that it is hard to clearly disentangle inequality from other factors, and that unethical activities are hidden and therefore hardly observable directly in survey data (Brockett 1992). Controlled laboratory experiments may thus help to investigate the role played by inequality in the occurrence of conflicts. For instance, some experimental studies have provided evidence of the existence of a positive relationship between inequality and conflicts, indicating that individuals may be willing to engage in conflicts by harming others when they suffer from disadvantageous inequality (Zizzo and Oswald 2001). Zizzo and Oswald (2001) designed a game where subjects can reduce (burn) other subjects' money at own costs. The authors found that despite the own cost of burning money, a large majority of participants chose to destroy some part of others' money, which is (partly) consistent with some models of inequality aversion.

A third explanation of conflicts often evoked in the literature is retaliation. However whether opportunities of retaliation will lead to more or less conflicts is also not clear-cut in the literature. Indeed on the one hand, one may reasonably expect that the opportunity to retaliate leads to the escalation of conflicts into a long-term vendetta (Fisher 2000). According to Fisher (2000) conflicts would have a tendency to escalate in the case of repeated situations. The role played by retaliation in the occurrence of conflicts has also been investigated in several previous experimental studies (Bolle et al. 2014; Zizzo, 2003). For instance, Bolle et al. (2014) studied the determinants of vendettas. The authors found that vendettas frequently occurred even when initial endowment were equal and despite the fact that vendettas were pointless. On the other hand, the opportunity of retaliation could also have a deterrent effect and therefore reduce the likelihood of conflicts if the parties anticipate and fear retaliation (Collier and Hoeffler 2004, Abbink and Sadrieh 2009). In other words, parties may refrain from engaging in conflicts for fear of retaliation. Some studies have shown that both effects may coexist in the laboratory (Abbink and Sadrieh 2009). In a repeated money burning

experiment, Abbink and Sadrieh (2009) observe significantly less destruction in a money burning game under full information as compared to a treatment where participants could hide their destruction behind random destruction. While the presence of retaliation opportunities incite individuals to burn less money, the authors observe however that in case of destruction, such acts are immediately followed by retaliation.

Finally, a fourth explanation of conflicts relies on non-monetary factors related to pure nastiness and desire for dominance. Standard microeconomic theory has traditionally ignored the role of status and desire for dominance assuming that utility is a function only of one's own absolute income. Notable exceptions include Duesenberry (1949), Veblen (1949), or Frank (1985). However recent behavioural findings have provided strong evidence that individuals may be willing to harm others in order to dominate despite the absence of immediate or future expected monetary returns (Charness and Grosskopf 2001, Charness and Rabin 2002, Zizzo and Oswald 2001, Zizzo 2003, Abbink and Sadrieh 2009; Chowdhury and Sheremeta 2010, Abbink and Herrmann 2011, Dohmen et al. 2011, Bolle et al. 2014, Charness et al. 2014).

3. The consequences of conflicts on welfare

Conflicts are typically viewed as something negative that should be avoided. Indeed conflicts for resources may be socially wasteful because the contestants may spend too much resource to win the prize (see Tullock 1980).[4] Conflicts associated with competition for scarce resources may also lead the contestants to engage in unethical activities such as destruction of resources, or sabotage against competitors in order to increase their chances of winning the contest (Lazear 1989, Harbring and Irlenbusch 2008). Conflicts of interest that arise from social dilemmas are also socially costly as they may result in significant social welfare losses if defection and free riding occur. Moreover, some studies have shown that conflicts may significantly reduce trust (Lei et al. 2014). It is for all these reasons that governments and firms spend significant amounts of resources in order to prevent or to reduce the occurrence of conflicts.

4. Conflict resolution

In this section, we briefly discuss a few mechanisms ranging from punishment institutions to cost sharing or compensation mechanisms that could be implemented to avoid or, at least, to limit the occurrence of conflicts. For instance in the context of public good dilemmas, several studies have shown that punishment institutions may be an efficient way to deter free riding within groups and thus to solve intra group conflicts (see, for instance, Fehr and Gächter 2000). This special issue also discusses the limitations of these mechanisms. For example,

[4] It should be noticed however that conflicts of interest are not necessarily always bad for an organization. This may be the case for instance when conflicts rhyme with inter individual or inter group competition that provides strong incentives to innovate and to outperform (e.g. Lazear and Rosen 1981). Conflicts of interest become detrimental to an organization or a society only when such competition induces important collective welfare losses and/or when it leads the individuals (or groups) to engage in destructive and unethical activities to win the contest.

several studies have shown that punishment institutions may exhibit the following features: (i) punishment may be socially costly both for the target and for the punisher, at least in the short run; (ii) punishment itself may constitute a public good (second order free riding) due to the fact that individuals may expect others to punish free riders without themselves incurring the cost of punishment; (iii) punishment may induce retaliation (counter punishment and revenge); (iv) punishment may be antisocial, e.g. when the cooperators are punished (Gächter et al. 2008, Herrmann et al. 2008).

5. Presentation of the papers of this special issue

We now provide a brief overview of the articles presented in this special issue.

5.1 The determinants of conflicts : The role of greed grievance, reciprocity and desire for dominance.

The paper "*The Impact of Relative Position and Returns on Sacrifice and Reciprocity: An Experimental Study using Individual Decisions*"by **Jordi Brandts, Enrique Fatas, Ernan Haruvy and Francesco Lagos (this issue)** contributes to the existing literature on the determinants of conflicts by investigating whether individuals are willing to decrease/increase others' payoffs at different costs and, if so, whether such decisions are related to (anti-)social preferences. More precisely, the authors investigate whether destruction decisions depend on selfishness (greed), (dis)advantageous inequality aversion (grievance), reciprocity, competitiveness, or pure desire for dominance. These issues are investigated through a series of different binary pairwise choices between two alternative states described only by payoffs to oneself and to another person. The findings of this study reveal an important heterogeneity of types of participants. Pure selfishness is the most frequently observed behavior. Among subjects exhibiting (anti-)social preferences, social welfare maximization is the most frequent, followed by inequality aversion and by competitiveness (i.e. a desire for dominance).

5.2 The cost of inter group conflicts: Segmentation of the society and losses in term of trust and trustworthiness

The paper entitled "*What Happens If You Single Out? An Experiment*" by **Fabio Galeotti and Daniel Zizzo**[5] focuses its attention on the social cost of inter group conflicts in terms of lower trust and trustworthiness in the specific context of "singling-out" situations. More precisely, this paper investigates a specific form of inter group conflicts, namely "singling-out" situations that can be defined as inter group situations in which one individual (a singleton group) is socially identified as different from a second group that is larger in size. A subject can be singled out by others because he or she possesses undesirable qualities which may lead to social exclusion, marginalization, or stigmatization. In this paper, the authors investigate the social costs associated with singling out an individual in terms of trust and trustworthiness. For this purpose, the authors artificially induce the status of being singled out in the lab by asking participants to rank other participants according to how much they would like to be matched with them in the experiment (from the most preferred to the least preferred

[5] This paper has already been published in a previous issue of this journal: Galeotti and Zizzo (2014), „What happens if you single out? An experiment," Social Choice and Welfare 43 (3), p.703-729.

match). After this questionnaire, participants are matched and play a trust game. The experimental treatments differ in the ranking phase. Under a positive frame, subjects singled out the most preferred match in the experiment, whereas under a negative frame they singled out the least preferred match in the experiment. The authors find that trustworthiness declines if there is a singled out subject; non-singled out subjects discriminate against the singled out subject when they are not responsible of the distinct status of this person; under a negative frame, the singled out subject returns significantly less.

5.3 Conflicts of interest in social dilemmas within groups and conflict resolution

The three papers by **Agathe Rouaix, Charles Figuières and Marc Willinger (this issue), Charles Noussair, Daan van Soest and Jan Stoop (this issue),** and **Dirk Engelmann and Nikos Nikiforakis (this issue)** discuss the social cost associated with within-group conflicts that may arise from social dilemmas due to the fact that private and public interests are not aligned. These papers also investigate the effectiveness of mechanisms such as redistribution programs or punishment institutions that may be implemented to reduce the conflicts of interest and free riding.

The paper *"The Trade-off between Welfare and Equality in a Public Good Experiment"* by **Agathe Rouaix, Charles Figuières and Marc Willinger** investigates whether redistribution policies may help reducing free riding in a public good dilemma by introducing heterogeneity in the endowments of the group members. Public good games with endowment heterogeneity have been addressed in the literature; however, the question whether heterogeneity is positive or detrimental for efficiency has still not been answered unambiguously in the literature. Some studies have found that groups with heterogenous endowments are less successful, while other studies observed the opposite finding, namely that group heterogeneity may increase the level of contributions. In their present paper, the authors contribute to the existing literature by testing the effect of heterogeneity on efficiency in a public good context. Their results show that welfare increases with the introduction of a redistribution mechanism that induces more unequal endowments.

The paper *"Punishment, Reward, and Cooperation in a Framed Field Experiment"* by **Charles Noussair, Daan van Soest and Jan Stoop** investigates the effectiveness of punishment in sustaining cooperation in the context of a social dilemma using field experiment data. The setting of their field experiment is a recreational fishing facility where the participants are regular customers of the facility. The design consists of three treatments. The baseline treatment is similar to a linear voluntary contributions game in which the fishermen are assigned to groups of four members. The punishment treatment is similar to the baseline except that individuals have an opportunity to punish others after having observed how many fish they catch. In the reward treatment, participants can reward others. The authors find that punishments tend to be directed at non-cooperators and rewards are assigned to those who are relatively cooperative. However, in contrast to the results typically found in laboratory experiments, the authors find that both punishments and rewards fail to increase the average level of cooperation. Several features of the game may explain these differences: (i) individuals engage in a real time activity, (ii) they can update their cooperation tendency in

real time, (iii) the experiment is framed as harvesting of a resource, and (iv) the game may evoke competitive behavior which makes the norm of cooperation less salient. This paper suggests that the effectiveness of punishment institution would be strongly context dependent.

The paper *"In the long-run we are all dead: On the benefits of peer punishment in rich environments"* by **Dirk Engelmann and Nikos Nikiforakis** also investigates the effectiveness of punishment mechanisms in a public good context. Specifically, the authors shed light on the limitations of peer punishment mechanisms in order to deter free riding in a public good context. According to previous studies, the costs of peer punishment can be outweighed by the benefits of higher cooperation under certain conditions: (i) if there is a sufficiently long time horizon, and (ii) if punishment cannot be avenged. However, as mentioned by the authors, in most instances in real life these conditions are not met, which implies that punishment can be often retaliated. The authors use a design that allows participants to employ a wide range of punishment strategies including retaliation of punishment. Similar to previous studies they find that, if punishment cannot be avenged, peer punishment leads to higher earnings relative to a baseline treatment without any punishment opportunities. However, in the more general setting, they find no evidence of a significant increase in group earnings over time relative to the baseline treatment.

5.4. Conflicts of interest, negative externalities and conflict resolution

The two following papers deal with conflict of interest generated by negative externalities and mechanisms to help reducing such conflicts.

The paper *"Cracking down on bribery"* by **Sheheryar Banuri and Catherine Eckel (this issue)** also investigates the effectiveness of punishment institutions but in another context, namely the context of corruption that distorts economic decision making, induces conflicts of interests and imposes negative externalities on society. Specifically, in this paper, the authors investigate experimentally the effectiveness but also the limitation of punishment institutions to combat corruption. The experiment is based on a three-player repeated bribery game. The three players are a firm that makes a discrete choice of whether to offer a bribe to the government official, a government official that observes the firms behavior and makes a discrete choice whether to grant the firm a favor, and a third party who is negatively affected by the transaction. In this context, the authors investigate experimentally whether corruption crackdowns reduce or increase corruption in the long run. Indeed, anti-corruption reforms are costly in terms of resources and time so that they are often followed by either a partial or complete retraction. In addition, the authors investigate whether the long term effects of crackdown policies vary by culture. This is done by comparing two countries that differ significantly in overall perception of corruption and experience with bribery: the US and Pakistan. The main findings of this study show that post-crackdown behavior is not significantly different from pre-crackdown behavior, suggesting that crackdowns are completely ineffective in the long run as corruption rebounds to pre-crackdown levels. In other words, the effect of the punishment institutions is not persistent over time once it has been removed.

The paper *"Choice Overload, Coordination and Inequality: three hurdles to the Effectiveness of the Compensation Mechanism"* by **Estelle Midler, Charles Figuières and Marc Willinger (this issue)** also investigates mechanisms to help reducing the conflict of interest generated by negative externalities when the decision of one agent harms someone else. Specifically, this paper discusses the effectiveness of the so-called "compensation mechanism" (Varian 1994) that allows agents who suffer from negative externalities to compensate those who reduce their production by means of transfers. In theory, such compensation mechanisms lead to a Pareto optimal outcome. However several studies have argued that this kind of mechanism may create a coordination problem that would undermine its effectiveness. In their paper, the authors investigate various factors that might affect the likelihood that subjects coordinate on a Pareto optimum. They show that the coordination problem is in fact not the only problem associated with the compensation mechanism. In addition, the authors find that the (in)effectiveness of the compensation mechanism also depends on several other factors, including (i) the size of the strategy space, (ii) the number of equilibria, and (iii) the inequality associated with the outcomes. In particular, increasing merely the number of options reduces the success of the mechanism. More importantly, allowing subjects to choose an option that provides equal payoffs to both players increases the mechanism's effectiveness.

5.5 Conflict resolution as a social dilemma

Finally, the paper *"The UN in the lab"* by **Malcolm Kass, Enrique Fatas, Catherine Eckel and Daniel Arce (this issue)** discusses the effectiveness of policies implemented to reduce the occurrence of global form of conflicts such as terrorism. Specifically, this paper discusses the limitation of anti-terrorism policies that may suffer from a free riding problem. Indeed, when combating terrorism, a country may face a choice between two strategies: preventive versus defensive actions. Preventative actions, such as destroying a terrorist training ground, benefit all governments. In sharp contrast, defensive actions reduce the attractiveness of the defending government but make other countries relatively more attractive as targets. While prevention is the most efficient choice, each country is tempted to free ride on the others' investment by using defending actions. This constitutes a prisoner's dilemma. In such context, the Nash equilibrium of the game is therefore for both countries to invest in defensive actions, which is Pareto inefficient. Countries thus face a difficult problem in coordinating on effective counterterrorist policies. This paper expands the experimental environment developed in Arce et al. (2011) to test the ability of a cost sharing institution in alleviating the collective action problem. In the experiment, treatments vary in the extent to which players share the cost of choosing the prevention strategy. The authors find that cost sharing can be a powerful policy choice, boosting the utilization of the optimal policy, but only when the level of cost sharing is sufficiently high.

6. Conclusion

To summarize, the papers presented in this issue shed light on the various determinants of conflict including selfishness (greed), inequality aversion (grievance), reciprocity and

competitiveness (desire for dominance). Each motive alone does not seem to be sufficient to explain the occurrence of conflicts. In any case, conflicts are socially costly as they typically induce significant welfare losses. They may also destroy trust and trustworthiness and lead to the underprovision of public goods. For all these reasons, there is scope for governments to intervene and to implement institutions and mechanisms in order to prevent or reduce the occurrence of conflicts. Among these mechanisms the punishment institutions seem to represent a powerful device to deter free riding in the context of social dilemmas; punishment may also be helpful in the context of corruption. However, some of these mechanisms suffer from serious weaknesses. For instance, it has been shown that punishment institutions are not the panacea as they may induce perverse behaviors such as retaliation or anti-social punishment. Furthermore, it seems that the effects of punishment are not persistent over time after the institutions have been removed, suggesting that they fail to enforce positive norms of sustainable cooperation. Finally some studies have shed light on the fact that some policies aimed at solving conflicts may suffer from free riding problems (second order free riding). This may be the case for instance when, at the international level, governments have to coordinate on the best policies to combat terrorism. While preventative actions would benefit all countries, each country in isolation may be tempted to invest in defensive actions, which is collectively sub-optimal.

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